

**POINTABLE OPTICAL TRANSCEIVERS FOR FREE SPACE OPTICAL  
COMMUNICATION**

**Abstract**

5           Optical transceivers include a diffractive optical element (DOE) attached to a  
surface of a prism or other optical support. The DOE is configured to direct an input  
optical signal to a planar or curved reflective surface, or receive an output optical signal  
from the planar or curved reflective surface at angles greater than a critical angle in the  
prism. In some examples, the optical support includes one or more curved reflective  
10   surfaces and the DOE is a hologram. Such optical transceivers include a reflective  
surface that is rotatable with respect to the DOE, or with respect to a selected  
communication direction and the DOE for selection of a transmission or reception  
direction. The optical supports of such optical transceivers can be mounted to a  
window, and include a reflective region configured to total internally reflect optical  
15   signals. Selection of a communication direction is based on a rotation of the rotatable  
reflective surface.